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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,762	02/04/2004	Paul A. Rhea	60046.0022USU1	3651

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EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
10/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,762	RHEA, PAUL A.	
	Examiner	Art Unit	
	Ping Lee	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *26 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 19, 20 and 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al (hereafter Li) (US 20020083419A1) in view of Spoltman et al (hereafter Spoltman) (US 5,715,369) and Prockup (US006157505A).

Regarding claims 19, 20, 1, 2 and 8-11, Li discloses a method for automatically testing audio channels of an audio device with the steps of generating a tone in digital format at a synthesizer (although not shown, it is inherently provided) associated with a sound card (para. 004, 0036, 0037), playing a first digital format tone from a sound card, recording the second digital format tone and comparing the recorded second digital format tone to the first digital format tone (para. 0037). Although not explicitly shown in the example discussed in paragraph 0037, a first digital format tone would be generated at a second frequency in view of the suggestion in paragraph 0032 in order to test the sound card in various frequencies (para. 004). Nevertheless, Li fails to show a mixer, D/A conversion, A/D conversion, internal loopback mechanism of the sound card and using FFT for signal comparison.

Li teaches a general sound card to be tested; however, one skilled in the art would have expected that the method taught in Li could be applied to any specific sound card, including sound card with mixer without generating any unexpected result. Examiner takes Official Notice that a sound card with a mixer is notoriously well known

in the art. Spoltman teaches to use internal loopback mechanism of the sound card to feedback the output signal from the sound card to the input port, so the speaker and microphone would be bypassed (col. 1, lines 56-60) and the ambient noise would not be a part of the testing. Spoltman clearly teaches the digital tone generated is being converted using D/A converter (211) to analog format, and analog tone is being converted using A/D converter (210) to digital format. Prockup also teaches a method for analyzing audio data in order to test an audio device. By using FFT and comparing the original signal and the recorded signal in frequency domain, the microprocessor could determine whether the system has passed the audio test. Thus, it would have been obvious to one of ordinary skill in the art to modify Li in view of Spoltman and Prockup by feeding the generated analog tone through internal loopback mechanism of the sound card with a mixer and using FFT for performing the signal analysis in order to eliminate the error caused by the microphone and speaker and obtain the testing result based on a simple comparison between the recorded signal and the original signal in frequency domain.

Regarding claims 3 and 4, Li teaches the frequency and the volume are predetermined.

Regarding claims 5 and 7, Li discloses the claimed frequency synthesizer and frequency modulation synthesizer (para. 0016).

Regarding claim 6, the claimed tone wave table is taught in Prockup (col. 4, lines 47-48).

Regarding claims 12 and 13, as taught in Prockup, the volume (in terms of amplitude) is being compared.

Regarding claim 14, Prockup teaches that the DC offset value is calculated (col. 7, lines 59-63 in view of Figs. 6A and 6B; as shown in Fig. 6B, the signal 130 is within an acceptable DC offset value comparing with 126 in Fig. 6A, signals 132 and 134 are not within acceptable DC offset value), and being compared with a known acceptable DC offset value (threshold), and the audio channel would be designated as failed if the calculated DC offset value is unacceptable.

Response to Arguments

3. Applicant's arguments filed 9/26/08 have been fully considered but they are not persuasive.

Applicant argued that the device disclosed in Li fails to show that the digital sound is generated on a synthesizer on an audio sound card. However, claims 1 and 19 specifies that "generating a first digital format tone at a first frequency at a synthesizer associated with an audio sound card". It is noted that the feature upon which applicant relies (i.e., a synthesizer on a sound card) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Since the synthesizer disclosed in Li is used to test the sound card, so the synthesizer is associated with the sound card.

Applicant argued that Li, Spoltman and Prockup fail to describe a mixer component of a sound card or playing the converted analog format tone to the mixer. It is noted that Li, the primary reference, teaches a general sound card without providing any detail on what component(s) on the sound card. However, Li teaches the concept of how to test the general sound card by comparing the recorded sound with the sound from the software emulating signal generator. One skilled in the art would have been motivated to utilizing the same concept for testing a specific type of sound card, including a sound card with a mixer having analog input. Examiner takes Official Notice that this type of sound card is notoriously well known in the art.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/
Primary Examiner, Art Unit 2614

pwl